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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,793	04/17/2001	Mark Elliot	6898-104XX/10101795	9926
38396	7590	01/04/2005	EXAMINER	
JOHN BRUCKNER, P.C. 5708 BACK BAY LANE AUSTIN, TX 78739			MEW, KEVIN D	
			ART UNIT	PAPER NUMBER
			2664	

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding:

Office Action Summary

Application No.

09/837,793

Applicant(s)

ELLIOT, MARK

Examiner

Kevin Mew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15, 19, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 16-18 and 20-22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4, 5, 6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Claim Objections

1. Claim 13, 21, 24 are objected to because of the following informalities:

In claim 13, replace the term "said" with "a" in line 12.

In claim 21, replace the term "is" with "are" in line 3.

In claim 24, replace the term "timestampers" with "timestamp" because claim 19, which claim 24 depends from, recites "an auxiliary receive timestamp" only.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 13-15, 19, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US Publication 2002/0055999) in view of Lyons (USP 5,864,557).

Regarding claim 13, Takeda discloses a method for improving time precision in a network (Monitoring Network 70, see Fig. 1) including a first clock (Time Stamper 312, Fig. 2) and a second clock (Time Stamper 322, Fig. 2) using a packet based network time protocol (Network Time Protocol NTP is used to correct time stampers 312, 322, see paragraph 0067, lines 1-16) that is transmitted and received in accordance with a data packet transmission protocol (TCP/IP, see paragraph 0085, lines 1-13) that also includes a error checking code for

use in detecting transmission errors in the received data packets (CRC header information, which allows error detection for data size, destination and source addresses, IP header, IP data travels through the monitoring network 70, see the entire paragraphs 0059, 0069 and Fig. 2) comprising the steps of:

determining a time of transmission (timestamp created by timestamp 322 for outflow packets, see entire paragraph 0075) when each packet containing network timing information is to be released for transmission (outflow packets, see entire paragraph 0075) from a respective first or second physical interface (Outflow Packet Processor 320 of Measuring Probe 31, Fig. 2) to the network (Monitoring Network 70, see Fig. 2),

writing the time of transmission and the associated error checking code in each outgoing information packets (CRC and outgoing timestamp are output as feature data for QoS in the outflow packet of measuring probe 31.0, see entire paragraphs 0059 and 0076 and Fig. 1),

using the respective other clock to determine, within a predetermined precision, a time of reception when each released information packet is received at the other physical interface (to said network (inflow packet is timestamped with a current time stamp by the inflow packet processor's timestamp in measuring probe 31.2, see paragraph 0071 and Figs. 1 and 2);

storing said time of reception in an auxiliary timestamp external to the information packet (time of reception is stored as a current timestamp by timestamp 322 on the inflow packet which already has a transmission timestamp, see entire paragraph 0071 and Fig. 2) in a manner that is transparent to said transmission protocol without any updating of said error checking code (no updating is made on the CRC code, see entire paragraph 0071);

associating each auxiliary time stamp with the respective incoming information packet (a current timestamp is associated each inflow packet, see entire paragraph 0071),

using the time of reception data in the auxiliary timestamps and the time of transmission data in the information packets to synchronize the first clock to the second clock (using time stamps in both timestampers 312 and 322 for synchronization, see entire paragraph 0067).

Takeda does not explicitly disclose releasing each outgoing information packet at the respective physical interface when the first or second clock associated with that interface indicates that the current time is equal, within a predetermined precision, to the respective said scheduled time of transmission;

However, Lyons discloses a transport stream encoder in which a real clock in the microprocessor is set to notify the microprocessor every 2.88 seconds that a data packet is ready to be transmitted within the scheduled time period (see col. 6, lines 1-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the time of packet transmission being used in Takeda with the scheduling method of Lyons such that the time of packet transmission of Takeda will be performed at the specified time of schedule. The motivation to do so is to provide a packet transport system that provides guaranteed delivery of data packets within a specified time period so that the packet transport system can adapt its operation to changing throughput requirements due to the scheduled changes.

Regarding claim 14, Takeda discloses the method of claim 13 wherein said network time protocol is an existing time protocol (Network Time Protocol NTP is used to correct time

stampers 312, 322, see paragraph 0067, lines 1-16), said transmission protocol is an existing transmission protocol (TCP/IP, see paragraph 0085, lines 1-13).

Regarding claim 15, Takeda discloses the method of claim 14, wherein the arriving packets are sent to a receive buffer after the auxiliary timestamp has been stored (see inflow data buffer, see element 335, Fig. 2).

Regarding claim 19, Takeda discloses an apparatus (see measuring probe 31.2, see Fig. 1) for reducing the uncertainty in timing on a network comprising:

an auxiliary receive timestamper (Timestamp 312 for inflow packets, see entire paragraph 0071, Fig. 2) for associating an auxiliary timestamp to arriving packets (stamp the inflow packet with the current time stamp, see entire paragraph 0071) before sending the packets to a receive buffer (packet discriminator 323, see Fig. 2), wherein said auxiliary timestamp is in addition to any existing network protocol timestamp (timestamp by timestamp 312 at the inflow packet processor is in addition to Network Time Protocol timestamp, see entire paragraph 0067) and does not require the recalculation of any existing error checking code before the packets are placed in said receive buffer (timestamp transmits the packet directly from the timestamp to the packet discriminator before without doing any recalculation of CRC code, see entire paragraph 0071); a transmit timestamper adapted to apply a future timestamp for packets to be transmitted at a future time (time stamp created by time stamper 322) together with any associated error checking code (egress packet comprises CRC code and time stamper 322 stamps outflow packets with the current time stamp, see entire paragraph 0059 and paragraph 0075, lines

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1-4), and a network transmitter (outflow packet processor 320, Fig. 2) adapted to hold and release the transmitted packets (packet capturing section 321, Fig. 2) from a physical interface (measuring probe 31, Fig. 2) according to said future timestamps (when an outflow packet is captured by the packet capturing section, the time stamper stamps the outflow packet with the current time stamp, see paragraph 0075, lines 1-4).

Regarding claim 23, Takeda discloses the apparatus of claim 19 wherein: said network is an ISO layered network (monitoring network supports TCP/IP, see entire paragraphs 0085, 0086, 0087, 0088) and follows the ISO rules for packets and networks (which therefore follows TCP/IP rules for data packets and networks); and said physical interface is a host physical layer to a boundary of the ISO layered network (measuring probe 31 is boundary to monitoring network, which supports TCP/IP, see entire paragraph 0088 and Fig. 2).

Regarding claim 24, Takeda discloses the apparatus of claim 19, wherein said auxiliary timestampers are transparent to an existing network time protocol (inflow packet timestampers stamps the inflow packet with the current time stamp without the involvement of the Time Network Protocol, see entire paragraph 0071).

Allowable Subject Matter

3. Claims 16-18, 20-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

In claim 16, the method of claim 15 wherein no changes are made to physical layer drivers or to any of ISO rules for packet structure, at all network layers.

In claim 20, the apparatus of claim 19 wherein:

the network is adapted to run according to ISO and TCP rules, including packet structure rules including a CRC field; and a media access controller extender apparatus transparent in operation to existing hardware, said media access controller extender being adapted to supply said auxiliary and future timestamps and utilize said auxiliary and future timestamps to reduce timing uncertainty on a network.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to precise network time transfer.

US Patent 6,438,702 to Hodge

US Patent 5,566,180 to Eidson et al.

US Patent 6,134,531 to Trewitt et al.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke extending to the right.